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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,475	08/26/2003	Lim Su Lee	8733.311.10-US	2307
30827 7590 06/15/2007 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER MARKOFF, ALEXANDER	
			ART UNIT 1746	PAPER NUMBER
			MAIL DATE 06/15/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/647,475

Applicant(s)

LEE, LIM SU

Examiner

Alexander Markoff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13, 14, 16, 18, 23-25, 28-30 and 32 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

- 6) ☒ Claim(s) 13, 14, 16, 18, 23-25, 28-30 and 32 is/are rejected.

- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/28/07 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 13, 14, 16, 18, 23-25, 28-30 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The applicants amended the claims to recite a brush that rotates based on a central axis along with the linear direction of the substrate movement or along the at least two side surfaces in a substantially straight line.

The applicants further amended the claims to recite a brush that attach to a side surface of a cylindrical body.

The amendments are not supported by the original disclosure.

The original disclosure is silent regarding a cylindrical body and a central axis.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 13, 14, 16, 18, 23-25, 28-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moinpour et al (US Patent No 5,901,399) in view of Fishkin et al (US Patent No 6,202,658) and Hashimoto et al (US Patent No 6,261,378).

Moinpour et al and Fishkin et al both teach cleaning substrates with brushes and sprays. Both documents are concern about cleaning side surfaces of the substrates during cleaning of the main surfaces. Both documents teach brushing of the main surfaces and spraying the side surfaces. Moinpour et al teach the use of cylindrical brushes and a liquid jet to clean the side surfaces. See at least Figures 2c, 3, 6 and 7

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and the related description. The document does not specify whether or not the liquid jet is energized. Fishkin et al teach the use of ultrasonic liquid jet to clean the side surfaces. Having the combined teachings of the cited documents it would have been obvious to an ordinary artisan at the time the invention was made to use ultrasonic spray in the method of Moinpour et al to further enhance disclosed cleaning because the documents teach the action of brushes and ultrasonics to solve the same problem. An ordinary artisan would have been reasonably expected that the use of combined action would improve the side cleaning results.

Moinpour et al and Fishkin et al do not specifically recite application of their methods to LCD substrates. Both of the documents are mainly directed to cleaning semiconductor wafers. Fishkin et al, however, teach that the method can be applied to glass substrates.

Hashimoto et al teach that the same method of cleaning are conventionally applied to semiconductor wafers and glass substrates, such LCD glass substrates.

Having a combined teachings of Moinpour et al, Fishkin et al and Hashimoto et al it would have been obvious to an ordinary artisan at the time the invention was made to apply a modified method of Moinpour et al to LCD glass substrates with reasonable expectation of success in order to have the substrates cleaned.

As to the limitation requiring moving of the substrate in a linear direction: it is noted that Moinpour et al show that in a scrubber the substrate is not only rotated, but also is moving through the scrubber in a linear direction. See at least Figure 3 the related description.

***Response to Arguments***

7. Applicant's arguments with respect to the amended claims have been considered but are moot in view of the new ground(s) of rejection.

The applicants amended the claims to recite brushing the side surface with a cylindrical brush and argue that the previously applied rejections are not proper.

The newly introduced limitations are addressed in the rejections above.

Moinpour et al, which are applied this time, teach brushing the side surfaces with cylindrical brushes.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alexander Markoff  
Primary Examiner  
Art Unit 1746

AM